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<b>TRANSMITTAL FORM</b>  (to be used for all correspondence after initial filing)	<b>Application Number</b>	09/224,340	
	<b>Filing Date</b>	December 31, 1998	
	<b>First Named Inventor</b>	Mario DiMarco	
	<b>Group Art Unit</b>	2841	
	<b>Examiner Name</b>	Tuan T. Dinh	
<b>Total Number of Pages in This Submission</b>		<b>Attorney Docket Number</b>	46180.3900/A-62-17022-US

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Firm or Individual name	Shahpar Shahpar, Reg. No. 45,875, SNELL & WILMER LLP One Arizona Center, 400 East Van Buren Phoenix, Arizona 85004-2202
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Date	April 11, 2003

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☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) \$320.00

## Complete if Known

Application Number	09/224,340
Filing Date	December 31, 1998
First Named Inventor	Mario DiMarco
Examiner Name	Tuan T. Dinh
Group Art Unit	2841
Attorney Docket No.	46180.3900/A62-17022-US

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1202	18	2202	9	Claims in excess of 20
1201	84	2201	42	Independent claims in excess of 3
1203	280	2203	140	Multiple dependent claim, if not paid
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1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

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1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non - English specification	
1812	2,520	1812	2,520	For filing a request for ex parte reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	410	2252	205	Extension for reply within second month	
1253	930	2253	465	Extension for reply within third month	
1254	1,450	2254	725	Extension for reply within fourth month	
1255	1,970	2255	985	Extension for reply within fifth month	
1401	320	2401	160	Notice of Appeal	
1402	320	2402	160	Filing a brief in support of an appeal	
1403	280	2403	140	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,300	2453	650	Petition to revive - unintentional	
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April 11, 2003

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
-PATENT-

Applicant: Honeywell International Inc.  
Inventor: Mario DiMarco  
Serial No.: 09/224,340  
Filing Date: December 31, 1998  
Title: MODIFIED IMA CABINET ARCHITECTURE  
Examiner: Tuan T. Dinh  
Art Unit: 2841

TO: Box APPEAL BRIEF-FEE  
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**APPELLANT'S BRIEF  
PURSUANT TO 37 C.F.R. § 1.192**

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**(Submitted in Triplicate)**

## TABLE OF CONTENTS

I.	REAL PARTY IN INTEREST .....	2
II.	RELATED APPEALS AND INTERFERENCES.....	3
III.	STATUS OF CLAIMS .....	3
IV.	STATUS OF AMENDMENTS .....	3
V.	SUMMARY OF INVENTION.....	4
VI.	ISSUES .....	4
VII.	GROUPING OF CLAIMS .....	4
VIII.	ARGUMENT .....	6
A.	The Examiner Has Not Established Anticipation Of Appellant's Claims By The Cited Reference .....	6
B.	The Examiner Has Not Established a <i>Prima Facie</i> Case of Obviousness by a Preponderance of the Evidence.....	9
1.	Claim 2.....	11
2.	Claim 3.....	11
3.	Claims 4 and 5 .....	12
4.	Claims 19 and 20 .....	13
5.	Claims 6, 7, and 9-11 .....	14
6.	Claims 14-18 .....	16
7.	Claims 12 and 21 .....	18
C.	Claims 4 And 5 Are Patentable Under 35 U.S.C. § 112, Second Paragraph .....	20
D.	Separately Patentable Claims.....	22
IX.	CONCLUSION.....	24
X.	APPENDIX OF CLAIMS ON APPEAL .....	26



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
-PATENT-

Applicant: Honeywell International Inc.

Inventor: Mario DiMarco

Serial No.: 09/224,340

Filing Date: December 31, 1998

Title: MODIFIED IMA CABINET ARCHITECTURE

Examiner: Tuan T. Dinh

Art Unit: 2841

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**APPELLANT'S BRIEF PURSUANT TO 37 C.F.R. § 1.192**

Dear Assistant Commissioner:

Appellant appeals the decision of the Examiner at least twice rejecting all of the claims pending in the present application, namely Claims 1-7 and 9-24. A Notice of Appeal was filed by Appellant on February 11, 2003 in the United States Patent and Trademark Office. **This appeal brief is being submitted in triplicate.**

**I. REAL PARTY IN INTEREST**

Honeywell International Inc. is the real party in interest in the subject application, by virtue of an Assignment from inventor Mario DiMarco to Honeywell, Inc. (recorded on August 3, 1999 at Reel 010140, Frame 0232) and the merger of Honeywell, Inc. into Honeywell International Inc.

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## **II. RELATED APPEALS AND INTERFERENCES**

U.S. Serial No. 09/224,029, which was appealed on June 13, 2003, may have a direct affect, be directly affected, or have a bearing on the decision to be rendered by the Board of Patent Appeals and Interferences in the present Appeal, because the subject matter of U.S. Serial No. 09/224,029 is related to the subject matter of the present application. No other appeal or interference will directly affect, be directly affected by, or have a bearing on the decision to be rendered by the Board of Patent Appeals and Interferences in the present Appeal.

## **III. STATUS OF CLAIMS**

Claims 1-7 and 9-24 are pending in the application. Claim 8 was cancelled in Appellant's September 18, 2000 Amendment.

Claims 1, 13, and 22-24 stand rejected under 35 U.S.C. § 102 (b) as being anticipated by Mazura, U.S. Patent No. 5,375,724, issued December 27, 1994 ("Mazura") and are appealed herein.

Claims 2-5, 19, and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mazura in view of Harris, U.S. Patent No. 5,546,273, issued August 13, 1996 ("Harris") and are appealed herein.

Claims 6, 7, and 9-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mazura in view of Martin, U.S. Patent No. 5,424,916, issued June 13, 1995 ("Martin") and are appealed herein.

Claims 14-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mazura in view of McCarthy, U.S. Patent No. 5,398,822, issued March 21, 1995 ("McCarthy") and are appealed herein.

Claims 12 and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mazura in view of Martin and further in view of McKenzie, U.S. Patent No. 4,002,386, issued January 11, 1977 ("McKenzie").

Claims 4 and 5 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention and are appealed herein.

#### **IV. STATUS OF AMENDMENTS**

An amendment canceling Claim 8, amending Claims 1 and 5, and adding new Claim 21 was made on September 18, 2000 and entered by the Examiner. A Continued Prosecution Application was filed pursuant to 37 C.F.R. § 1.53(d) on August 15, 2001, with a Preliminary Amendment amending Claims 1, 2, and 6, and adding new Claims 22-24, and has been entered by the Examiner.

#### **V. SUMMARY OF INVENTION**

The present invention relates to an integrated modular avionics (IMA) cabinet for housing printed circuit board (PCB) modules. In accordance with an exemplary embodiment of the present invention, the IMA cabinet includes a chassis configured with slots for receiving the PCB modules. The chassis of the IMA cabinet also includes a rear panel configured for connecting to connectors, wire harnesses, and the like. Additionally, the PCB modules include a front panel configured with screws for securing the PCB modules to the chassis of the IMA cabinet. The PCB modules also include retractable handles for transporting the PCB modules. The chassis of the IMA cabinet is also configured with ventilation holes for cooling the PCB modules. The IMA cabinet is further configured to be EMI/RFI resistant. In an exemplary embodiment, the IMA cabinet is configured such that substantially all of the electronic and/or computer components are disposed on the PCB modules and not in the IMA cabinet, thus reducing the overall cost of the IMA cabinet and facilitating easier and quicker reconfiguration, repair, and replacement of the PCB modules. Specification, p. 2, line 19 to p. 3, line 9.

#### **VI. ISSUES**

The issues presented on appeal are:

- A. Whether the prior art anticipates Claims 1, 13, and 22-24.
- B. Whether the Examiner has established a *prima facie* case of obviousness by a preponderance of the evidence, such that the prior art suggests the desirability of combining and/or modifying the cited references to meet Claims 2-7, 9-12, 14-19, 20, and 21 in the manner proposed by the Examiner.

- C. Whether Claims 4 and 5 are unpatentable under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicants regard as the invention.

## **VII. GROUPING OF CLAIMS**

The Examiner's rejection of Claims 1, 13, and 22-24 under 35 U.S.C. §102 (b) do not stand or fall together. More specifically, the following groups of claims are believed to be separately patentable:

- In Group I, Claims 1, 13, 16, 17, and 22 stand together;
- In Group II, Claim 23 stands alone; and
- In Group III, Claim 24 stands alone.

The Examiner's rejection of Claims 2-5, 19, and 20 under 35 U.S.C. §103 (a) do not stand or fall together. More specifically, the following groups of claims are believed to be separately patentable:

- In Group IV, Claim 2 stands alone;
- In Group V, Claim 3 stands alone;
- In Group VI, Claim 4 stands alone;
- In Group VII, Claim 5 stands alone;
- In Group VIII, Claim 19 stands alone; and
- In Group IX, Claim 20 stands alone.

The Examiner's rejection of Claims 6, 7, and 9-11 under 35 U.S.C. §103 (a) do not stand or fall together. More specifically, the following groups of claims are believed to be separately patentable:

- In Group X, Claim 6 stands alone; and
- In Group XI, Claims 7, 9, 10, and 11 stand together.

The Examiner's rejection of Claims 14-18 under 35 U.S.C. §103 (a) do not stand or fall together. More specifically, the following groups of claims are believed to be separately patentable:

- In Group XII, Claim 14 stands alone;
- In Group XIII, Claim 15 stands alone; and
- In Group XIV, Claim 18 stands alone.



The Examiner's rejection of Claims 12 and 21 under 35 U.S.C. §103 (a) do not stand or fall together. More specifically, the following groups of claims are believed to be separately patentable:

In Group XV, Claim 12 stands alone; and

In Group XVI, Claim 21 stands alone.

The Examiner's rejection of Claims 4 and 5 under 35 U.S.C. §112 (second paragraph) do not stand or fall together. More specifically, the following groups of claims are believed to be separately patentable:

In Group VI, Claim 4 stands alone; and

In Group VII, Claim 5 stands alone.

## **VIII. ARGUMENT**

### **A. The Examiner Has Not Established Anticipation Of Appellant's Claims By The Cited Reference**

Claims 1, 13, and 22-24 stand rejected under 35 U.S.C. § 102 (b) as being anticipated by Mazura, U.S. Patent No. 5,375,724, issued December 27, 1994 ("Mazura"). Applicant respectfully traverses the rejection.

To sustain this rejection, the Examiner must establish that "the invention was patented or described in a printed publication in this or a foreign country...more than one year prior to the date of the application for patent in the United States". 35 U.S.C. § 102(b). "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference."<sup>1</sup> To anticipate a claim for a patent, a single prior source must contain each of its limitations.<sup>2</sup> In other words, "every limitation of a claim must identically appear in a single prior art reference for it to anticipate the claim."<sup>3</sup> "To anticipate a claim, a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter."<sup>4</sup>

<sup>1</sup> Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

<sup>2</sup> Hybridtech, Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1376, 231 U.S.P.Q. 81, 90 (Fed. Cir. 1986); In re Donohue, 766 F.2d 531, 226 U.S.P.Q. 619, 621 (Fed. Cir. 1985).

<sup>3</sup> Gechter v. Davidson, 116 F.3d 1454 (Fed. Cir. 1997) (emphasis added).

<sup>4</sup> PPG Indus., Inc. v. Guardian Indus. Corp., 75 F.3d 1558 (Fed. Cir. 1996).

The Examiner has not established anticipation of Appellant's claims because, *inter alia*, the prior art reference does not disclose all of the elements of Appellant's claims. Because the Examiner has not established anticipation, Claims 1, 13, and 22-24 are patentable over the Mazura reference. Thus, Appellant respectfully requests that the rejection of these claims under 35 U.S.C. § 102(b) be withdrawn.

Mazura discloses a component carrier 1 to accommodate plug-in modules 2 and includes two front module rails 3 and two rear module rails (not visible). These four module rails 3 connect the two side walls 4 of component carrier 1, which further includes holding strips 5 that fasten the component carrier 1 in an equipment cabinet (not shown). Component carrier 1 together with side walls 4, a top 6, a rear wall, and a bottom (the latter two not visible) is tightly sealed against high frequencies to ensure a tight seal. Col. 3, line 60 to Col. 4, line 6.

Using plug-in connections and a rear wall plate in Mazura, plug-in modules 2 are in communication with one another within component carrier 1. Plug-in module 2 has a circuit board 7 and a front panel 8, where circuit board 7 has electronic and electrical components interconnected by metal conductor paths. Each circuit board 7 is guided in guide rails that extend between the front and rear module rails 3. The front edge of circuit board 7 is fastened to front panel 8, which has a pivotal removal handle 9 for inserting and removing plug-in module 2. Col. 4, lines 7-21.

Mazura discloses a seal for providing electrical contacts. However, problems arise due to unavoidable gaps between plug-in modules 2 which are pushed into and out of component carrier 1. In order to seal the gaps between the front panels of plug-in modules 2, spring strips establish a plurality of electrical contacts with the edges of the adjacent front panels. Col. 1, lines 30-46. The spring strips establish a row of electrical contacts, which prevent the escape as well as the inward penetration of electromagnetic high frequency interfering fields through the gaps. Col. 4, lines 22-32.

However, Mazura fails to disclose where "each PCB module includes a faceplate and a connector assembly disposed opposite said faceplate such that each PCB module is enclosed" as recited in Claim 1 (and Claims 13 and 22 which depend from Claim 1). Mazura further fails to disclose "each PCB module is enclosed" as recited in Claim 24. Mazura discloses a form of communication between the plug-in modules, namely, the plug-in connections and the rear wall plate. Indeed, the "rear wall plate" which is common to all the plug-in modules in Mazura

teaches away from the present invention where “each PCB module includes a faceplate and a connector assembly disposed opposite said faceplate such that each PCB module is enclosed” as recited in Claim 1 and “each PCB module is enclosed” as recited in Claim 24 (emphasis added). Mazura has a common rear wall plate for all plug-in modules (so that the plug-in modules can communicate with each other). Whereas, in Claim 1, each PCB module has a faceplate and a connector assembly, not one common assembly. As such, each PCB module in Claims 1 and 24 is enclosed. Thus, Mazura fails to disclose “a connector assembly disposed opposite said faceplate such that each PCB module is enclosed” as recited in Claim 1 and “each PCB module is enclosed” as recited in Claim 24.

Mazura also fails to disclose “said plurality of printed circuit board modules creates a seal with said chassis” as recited in Claims 1, 23, and 24 (and Claims 13 and 22 which depend from Claim 1). Mazura discloses spring contact strips 13 with closely spaced elastic spring leaves 14 where “when plug-in module 2 is inserted, lay themselves against the smooth long side 15 of the adjacent front panel 8” of plug-in module 2, so that the seal is clearly between plug-in modules 2. Figure 1 shows spring contact strips 13 with closely spaced elastic spring leaves 14 between plug-in modules 2 only. Col. 4, lines 22-32 and Figure 1. Thus, the seal in Mazura is between plug-in modules 2 only and not between plug-in modules 2 and component carrier 1. Therefore, Mazura fails to disclose “said plurality of printed circuit board modules creates a seal with said chassis” as recited in Claims 1, 23, and 24.

Accordingly, Applicant respectfully submits that each and every element of Claims 1, 13, and 22-24 are not disclosed and therefore not anticipated by Mazura. Therefore, Applicant respectfully requests the withdrawal of this rejection.

Thus, under Hybridtech, Inc. v. Monoclonal Antibodies, Inc., In re Donohue, Gechter v. Davidson, and PPG Indus., Inc. v. Guardian Indus. Corp., Mazura fails to disclose every limitation of each of Claims 1, 13, and 22-24, so that Claims 1, 13, and 22-24 are patentable over the Mazura reference. Accordingly, for the foregoing reasons, the Examiner has failed to carry his burden that Claims 1, 13, and 22-24, Groups I through III, are anticipated by the cited reference. Therefore, the Groups I through III claims are patentable over the cited reference. Applicant respectfully requests withdrawal of this rejection.

**B. The Examiner Has Not Established A *Prima Facie* Case Of Obviousness By A Preponderance Of The Evidence**

Under 35 U.S.C. § 103(a), “a patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains”. To sustain an obviousness rejection, the Examiner has the initial burden to establish a *prima facie* case of obviousness. Furthermore, the burden the Examiner must establish for a *prima facie* case of obviousness is by a preponderance of the evidence. To establish a *prima facie* case of obviousness, the Examiner must establish the following: (1) there must be some suggestion or motivation (in the references or knowledge generally available to one of ordinary skill in the art) to modify the reference or combine references; (2) there must be a reasonable expectation of success; and (3) the reference (or references when combined) must teach or suggest all the claim limitations.<sup>5</sup>

To establish a *prima facie* case of obviousness, the Examiner must show either how the prior art references suggest, either expressly or impliedly, the combination that results in Appellant’s claims or, alternatively, the Examiner must present a convincing line of reasoning as to why one skilled in the art would have found the claims to have been obvious in light of the teachings of the references.<sup>6</sup> When the motivation to combine the teachings of the prior art references is not immediately apparent, it is the duty of the Examiner to explain why the combination of the teachings is proper.<sup>7</sup>

“The factual inquiry whether to combine references must be thorough and searching”.<sup>8</sup> “It must be based on objective evidence of record”.<sup>9</sup> “This precedent has been reinforced in myriad decisions, and cannot be dispensed with”.<sup>10</sup>

<sup>5</sup> M.P.E.P. § 2142.

<sup>6</sup> Ex parte Clapp, 227 U.S.P.Q. 972, 973 (Bd. of Pat. Appeals and Interferences, 1985).

<sup>7</sup> Ex parte Skinner, 2 U.S.P.Q.2d 1788 (Bd. of Pat. Appeals and Interferences, 1986).

<sup>8</sup> In re Sang Su Lee, 277 F.2d 1338, 1342, 61 U.S.P.Q.2d (BNA) 1430 (Fed. Cir. 2002) (citing McGinley v. Franklin Sports, Inc., 262 F.3d 1339, 1351-52, 60 U.S.P.Q.2d (BNA) 1001, 1008 (Fed. Cir. 2001)).

<sup>9</sup> In re Sang Su Lee at 1342.

<sup>10</sup> Id. (citing Brown & Williamson Tobacco Corp. Philip Morris Inc., 229 F.3d 1120, 1124-25, 56 U.S.P.Q.2d (BNA) 1456, 1459 (Fed. Cir. 2000) (“a showing of a suggestion, teaching, or motivation to combine the prior art references is an ‘essential component of an obviousness holding’” quoting C.R.

"This factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher."<sup>11</sup> "Thus the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion".<sup>12</sup>

The test of obviousness is not whether features of a secondary reference may be bodily incorporated into a primary reference's structure, nor whether a claimed invention is expressly suggested in any one or all of the references. Instead, the test is what the combined teachings of references would have suggested to those of ordinary skill in the art.<sup>13</sup> Finally, the claimed invention cannot be used as an instruction manual or "template" to piece together teachings of the prior art so that the claimed invention is rendered obvious.<sup>14</sup>

The Examiner has not established a *prima facie* case of obviousness because, *inter alia*, (1) the prior art references, taken together, do not teach or suggest all of the elements of Appellant's claims; (2) there is no suggestion in the prior art to combine or modify references to meet Appellant's claims; and (3) combination of the prior art references does not result in Appellant's claims. Because the Examiner has not met his burden of establishing obviousness by a preponderance of the evidence, Claims 2-7, 9-12, 14-19, 20, and 21, and consequently Groups IV through XVI, are patentable over the various references and/or the combinations. Thus, Appellant respectfully requests that the rejections of these claims under 35 U.S.C. § 103(a) be withdrawn.

### **REJECTIONS**

Claims 2-5, 19, and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mazura in view of Harris, U.S. Patent No. 5,546,273, issued August 13, 1996 ("Harris"). Applicant respectfully believes that the § 103 rejections contained within the Office Action are now moot, since they apply to claims that depend from independent claims that are patentable in light of the foregoing arguments. Nevertheless, Applicant further distinguishes the references.

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Bard, Inc., v. M3 Systems, Inc., 157 F.3d 1340, 1352, 48 U.S.P.Q.2d (BNA) 1225, 1232 (Fed. Cir. 1998); In re Dembiczak, 175 F.3d 994, 999, 50 U.S.P.Q.2d (BNA) 1614, 1617 (Fed. Cir. 1999)).

<sup>11</sup> W.L. Gore v. Garlock, Inc., 721 F.2d 1540, 1553, 220 U.S.P.Q. (BNA) 303, 312-13 (Fed. Cir. 1983).

<sup>12</sup> In re Sang Su Lee at 1343-44.

<sup>13</sup> In re Keller, Terry, and Davies, 208 U.S.P.Q. 871, 881 (C.C.P.A. 1981).

Harris discloses an automotive audio system 10 having a controller housing 12, an amplifier housing 14, and a remote data access terminal (RDAT) 16 with the controller housing 12 and amplifier housing 14 mounted in the trunk 20 of the automotive vehicle 18. Col. 3, lines 1-12. Controller housing 12 includes an audio component card 70 with a circuit board 72 and a face plate 74. Thumb screws 90 secure audio component card 70 within controller housing 12. Col. 9, line 57 to Col. 10, line 9.

### **Claim 2**

Mazura in view of Harris fails to teach, advise, or suggest “each of said plurality of PCB modules further comprises: a first screw for attaching said first end of said face plate to said chassis; and a second screw for attaching said second end of said face plate to said chassis” as recited in Claim 2 (and Claims 3-5, which variously depend from Claim 2). Although “each front panel is provided at its top and bottom near its transverse edges 18 with a fastening screw 19 having a slotted screw head 20” in Mazura, this configuration is “to enable the front panels 8 of the plug-in modules 2 to be screwed to module rails 3” and not to component carrier 1. As such, Mazura fails to teach, advise, or suggest where a screw attaches the face plate to the chassis; rather, Mazura uses fastening screw 19 to enable front panels 8 to be screwed to module rails 3. Harris, on the other hand, discloses thumb screws 90 for securing audio component card 70 within controller housing 12. The Office alleges that Harris discloses a PCB module (70); however, Harris merely discloses an audio component card 70 having a circuit board 72 and a face plate 74 and not a PCB module as alleged by the Office. Thus, Mazura in view of Harris fails to teach, advise, or suggest “each of said plurality of PCB modules further comprises: a first screw for attaching said first end of said face plate to said chassis; and a second screw for attaching said second end of said face plate to said chassis” as recited in Claim 2.

### **Claim 3**

The Office alleges that Mazura discloses “said first screw (19) is configured as a jackscrew” without citation to a relevant passage in Mazura. Although Applicant has carefully reviewed Mazura, Applicant has not identified an express or implied disclosure of a jack screw. Mazura discloses “headless screws” (Col. 4, lines 55-60); however, Mazura fails to teach, advise, or suggest “said first screw is configured as a jack screw” as recited in Claim 3. Applicant respectfully requests clarification from the Office.

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<sup>14</sup> In re Fritsch, 23 U.S.P.Q.2d 1780, 1783-84 (C.A.F.C. 1992).

### **Claims 4 and 5**

The Office alleges that Harris discloses said first and second screws (90 of Harris) are configured to clutch when said screws are tightened to apply a predetermined amount of force between said faceplate (8 of Mazura) of said printed circuit board module and said cabinet. The Office further alleges that Mazura and Harris disclose and satisfy the claimed invention except for the predetermined amount of force is about 70 pounds per screw. The Office argues that it would have been obvious to one having ordinary skill in the art at the time of the invention to apply the force to fasten the screw on the module for securing the module within the cabinet, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art".<sup>15</sup> Applicants respectfully note that the Examiner provides no prior art teaching or suggestion which would provide a basis for the Examiner's conclusions. The Examiner may take official notice of facts outside the record which are well known in the art. The particular "load of about 70 pounds per screw", however, is not known or disclosed and cannot fairly be construed as "well-known". Accordingly, Applicant respectfully requests that the Examiner cite a reference in support of his or her position under M.P.E.P. § 2144.03.

A "jack screw" is a mechanical device, where a screw applies a certain amount of force to lift or push a load. Indeed, WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY (Unabridged) defines a jack screw as "a cylinder with a helical cut groove on the outer surface or a cone with a conical spiral groove used variously (as to fasten, apply pressure, transmit motion, or make adjustments) esp. when a large mechanical advantage and irreversible motion are desired" (emphasis added).<sup>16</sup> Accordingly, Mazura does not teach that the "headless screw" is a jack screw or that any amount of force is applied by the screw to clutch or hold the module to the chassis. On the other hand, WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY (Unabridged) defines a thumbscrew as merely "consisting wholly or partly of a screw or possessing a worm".<sup>17</sup> As such, by definition, a thumbscrew does not apply any amount of force to clutch or hold. Harris fails to teach, advise, or suggest that any amount of force is applied by thumb screws 90 to clutch or hold, e.g., a module to a chassis. As such, Mazura in view of Harris fail to teach,

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<sup>15</sup> Citing In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

<sup>16</sup> WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY (Unabridged) 2040 (Merriam-Webster, Inc. 1993).

<sup>17</sup> WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY (Unabridged) 2040 (Merriam-Webster, Inc. 1993).

advise, or suggest "said first and second screws are configured to clutch when said screws are tightened to apply a predetermined amount of force between said face plate of the PCB module and said chassis" as recited in Claim 4 (and Claim 5, which depends from Claim 4), or "said predetermined amount of force applies a load of about 70 pounds per screw" as recited in Claim 5.

### **Claims 19 and 20**

Mazura discloses "four module rails 3 which are made of aluminum profiles and are arranged parallel to one another and in a horizontal plane, [and] connect the two side walls 4 of component carrier 1 which are equipped with holding strips 5". Indeed, as illustrated in Figure 1 of Mazura, rails 3 connect the two side walls 4, so that they cannot be "centrally mounted with respect to each slot" as recited in Claim 20. Harris discloses a chamber 44 within controller housing 12, where chamber 44 has walls 30, 32, and 34, and a door 40. An upper and lower chassis 31 and 35 are mounted within chamber 44, where upper and lower tracks 52 snap fit respectively into each chassis. Col. 3, lines 49-59.

"The factual inquiry whether to combine references must be thorough and searching".<sup>18</sup> "It must be based on objective evidence of record".<sup>19</sup> "This precedent has been reinforced in myriad decisions, and cannot be dispensed with".<sup>20</sup> Accordingly, Applicant submits that the cited art of record contains no teaching, suggestion, or motivation to combine the references as proposed by the Office.<sup>21</sup> The Office is impermissibly picking and choosing the various missing claimed elements using hindsight reasoning in an attempt to recreate the claimed invention with Applicant's disclosure as the basis. Thus, without using impermissible hindsight reasoning, it would not have been obvious to one of ordinary skill in the art at the time of the invention to modify Mazura in view of Harris to include the missing claimed elements. Regardless, Mazura in view of Harris fails to teach, advise, or suggest "said top panel and said bottom panel are

<sup>18</sup> In re Sang Su Lee, 277 F.2d 1338, 1342, 61 U.S.P.Q.2d (BNA) 1430 (Fed. Cir. 2002) (citing McGinley v. Franklin Sports, Inc., 262 F.3d 1339, 1351-52, 60 U.S.P.Q.2d (BNA) 1001, 1008 (Fed. Cir. 2001)).

<sup>19</sup> In re Sang Su Lee at 1342.

<sup>20</sup> Id. (citing Brown & Williamson Tobacco Corp. Philip Morris Inc., 229 F.3d 1120, 1124-25, 56 U.S.P.Q.2d (BNA) 1456, 1459 (Fed. Cir. 2000) ("a showing of a suggestion, teaching, or motivation to combine the prior art references is an 'essential component of an obviousness holding'" quoting C.R. Bard, Inc., v. M3 Systems, Inc., 157 F.3d 1340, 1352, 48 U.S.P.Q.2d (BNA) 1225, 1232 (Fed. Cir. 1998); In re Dembiczak, 175 F.3d 994, 999, 50 U.S.P.Q.2d (BNA) 1614, 1617 (Fed. Cir. 1999)).

<sup>21</sup> See ACS Hosp. Systems, Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577 (Fed. Cir. 1984) (teachings of the prior art can be combined to show obviousness only if there is some suggestion or teaching to do so).



configured with a plurality of guide rails for guiding said PCB modules into said slots in said chassis” as recited in Claim 19 (and Claim 20, which depends from Claim 19) or “each slot in said chassis has one guide rail mounted on said top panel and one guide rail mounted on said bottom panel, wherein said guide rails are centrally mounted with respect to each slot” as recited in Claim 20.

Therefore, Applicant respectfully requests the withdrawal of the rejection of Claims 2-5, 19, and 20 over Mazura in view of Harris.

**Claims 6, 7, and 9-11**

The Office rejected Claims 6, 7, and 9-11 under 35 U.S.C. § 103(a) as being unpatentable over Mazura in view of Martin, U.S. Patent No. 5,424,916, issued June 13, 1995 (“Martin”). Applicant respectfully traverses this rejection.

The Office alleges that Martin discloses “a module (30) having first and second printed circuit boards (32-34-figure 2) connected to a connector assembly (50) with 90 degrees lead and without using ribbon cables”. The Office argues that it would have been obvious to one of ordinary skill in the art at the time of invention “to modify the cabinet of Mazura and provide the module having more than one circuit board connected to the connector assembly as taught by Martin in order to reduce an electrical connection between two boards and backplane connector of the cabinet”.

Martin discloses a combination conductive and convective heatsink for use in an electronic module. A heatsink member 10 includes first and second major planar surfaces 12 and 14, respectively. Adjacent surfaces 12 and 14 is an object from which heat is to be transferred, where the object is an electronic circuit board. The conductive and flow-through heatsink uses heat pipes 18a-18d and 23 with flow-through passage areas 20a-20e. Heat pipes 18a-18d and 23 are used to conduct heat from surfaces 12 and 14 to a mounting rack 42. For example, heat pipe 18b is a conventional heat pipe having wicking material 22 located on the inner surface of the pipe. Alternatively, solid heat pipe 23 has carbon fibers 24 oriented to conduct heat from surfaces 12 and 14 to mounting rack 42. Conductive and convective heatsink 10a is used with electronic module 30 having first and second electronic circuit boards 32 and 34. Electronic module 30 is mounted in mounting rack 42 having side walls 41 and 43, motherboard 44, and connectors 46a-46c. A “recess 48 guides electronic module 30 into mounting rack 42 until

electronic module connector 50 and connector pins 51 engage and mate with mother board connector 46b". Col. 4 to Col. 5.

Accordingly, even the combination of Mazura in view of Martin fails to teach, advise, or suggest a PCB module having "a first circuit board having a first end connected to said face plate and an opposite second end connected to said connector assembly; and a second circuit board having a first end connected to said face plate and an opposite second end connected to said connector assembly" as recited in Claim 6 (and Claim 7, which depends from Claim 6). Mazura in view of Martin also fails to teach, advise, or suggest a PCB module having a connector assembly where "said connector assembly further comprises a plurality of connectors for connecting to wire harnesses" as recited in Claim 7 (and Claims 9-11, which variously depend from Claim 7).

As described above, each "plug-in module 2 is essentially composed of a circuit board 7 and a front panel 8". As such, plug-in module 2 of Mazura is compact compared to electronic module 30 of Martin having first and second electronic circuit boards 32 and 34 mounted on heatsink member 10a. Consequently, attempting to insert the electronic module 30 of Martin having first and second electronic circuit boards 32 and 34 and heatsink member 10a into plug-in module 2 of Mazura would render Mazura inoperable for its intended use. Accordingly, Mazura differs from Martin in connection with the definition of "module" and, consequently, how the electronic module 30 (i.e., circuit boards 32 and 34 and heatsink 10a) would fit into the rack or carrier. The electronic module 30 (i.e., circuit boards 32 and 34 and heatsink 10a) of Martin could not fit in the space made for plug-in module 2. Thus, Mazura clearly differs from Martin, and attempting to modify Mazura with the electronic module 30 of Martin would render Mazura inoperable for its intended use.

Furthermore, Martin is non-analogous art under M.P.E.P. § 2141.01(a). "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the invention was concerned."<sup>22</sup> As discussed above, Martin discloses a combination conductive and convective heatsink. A conductive and convective heatsink is not reasonably pertinent to the problem with which the invention is concerned. The solid heat pipe 23 and

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<sup>22</sup> In re Oetiker, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992) and see M.P.E.P. § 2141.01(a).

carbon fibers 24 in Martin are oriented to conduct heat from surfaces 12 and 14 to mounting rack 42. On the other hand, the present invention addresses electromagnetic interference (EMI), radio frequency interference (RFI), environmental contaminants, and vibrations (See Present Application, p. 1, lines 11-14). Thus, the problems with heatsinks are not reasonably pertinent to the problems with EMI, RFI, contaminants, or vibrations. Therefore, Martin is non-analogous art.

"The factual inquiry whether to combine references must be thorough and searching".<sup>23</sup> "It must be based on objective evidence of record".<sup>24</sup> "This precedent has been reinforced in myriad decisions, and cannot be dispensed with".<sup>25</sup> Accordingly, Applicant submits that the cited art of record contains no teaching, suggestion, or motivation to combine the references as proposed by the Office.<sup>26</sup> The Office is impermissibly picking and choosing the various missing claimed elements using hindsight reasoning in an attempt to recreate the claimed invention with Applicant's disclosure as the basis. Thus, without using impermissible hindsight reasoning, it would not have been obvious to one of ordinary skill in the art at the time of the invention to modify Mazura in view of Martin to include the missing claimed elements. Regardless, the combination fail to teach, advise, or suggest the missing claimed elements. Therefore, Claims 6, 7, and 9-11 are patentable over Mazura in view of Martin.

### **Claims 14-18**

The Office rejected Claims 14-18 under 35 U.S.C. § 103(a) as being unpatentable over Mazura in view of McCarthy, U.S. Patent No. 5,398,822, issued March 21, 1995 ("McCarthy"). Applicant respectfully traverses this rejection.

Mazura fails to teach, advise, or suggest where "said top panel and said bottom panel are interchangeable" as recited in Claim 14 or where "said first side panel and said second side panel

<sup>23</sup> In re Sang Su Lee, 277 F.2d 1338, 1342, 61 U.S.P.Q.2d (BNA) 1430 (Fed. Cir. 2002) (citing McGinley v. Franklin Sports, Inc., 262 F.3d 1339, 1351-52, 60 U.S.P.Q.2d (BNA) 1001, 1008 (Fed. Cir. 2001)).

<sup>24</sup> In re Sang Su Lee at 1342.

<sup>25</sup> Id. (citing Brown & Williamson Tobacco Corp. Philip Morris Inc., 229 F.3d 1120, 1124-25, 56 U.S.P.Q.2d (BNA) 1456, 1459 (Fed. Cir. 2000) ("a showing of a suggestion, teaching, or motivation to combine the prior art references is an 'essential component of an obviousness holding'" quoting C.R. Bard, Inc., v. M3 Systems, Inc., 157 F.3d 1340, 1352, 48 U.S.P.Q.2d (BNA) 1225, 1232 (Fed. Cir. 1998); In re Dembiczak, 175 F.3d 994, 999, 50 U.S.P.Q.2d (BNA) 1614, 1617 (Fed. Cir. 1999)).

<sup>26</sup> See ACS Hosp. Systems, Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577 (Fed. Cir. 1984) (teachings of the prior art can be combined to show obviousness only if there is some suggestion or teaching to do so).

are interchangeable” as recited in Claim 15. The Office argues that “a part of the cabinet may be relocated without modification to the operation of the cabinet”, so that “such a relocation is considered to have been within the skill of art”.<sup>27</sup> Clearly, interchangeable panels are not a mere relocation of parts falling under In re Japikse. The present application recognizes that interchangeable panels simplify assembly and reduce the number of required parts. Present Application, lines 8-13. Alternatively, for example, McCarthy distinguishes top chamber 12 from “open” bottom compartment 16 indicating they would not be interchangeable. It is evident that where two elements are identical in McCarthy, it is so indicated (e.g., wave or card guide 30 and identical mirror image wave or card guide 32 are so indicated). In this manner, McCarthy addresses a different need by making the top and bottom chamber and compartment distinguishable and unique. Mazura, on the other hand, does not even recognize this feature and therefore fails to address it.

McCarthy also fails to teach, advise, or suggest where “said ventilation holes are less than about 0.09 inches in diameter” as recited in Claim 18. The Office argues that it would have been “an obvious matter of design choice to make as small (diameter) as possible to reduce the amount of space, since such a modification would have involved a mere change in this size of the hole”. The Office further alleges that a “change in size is generally recognized as being within the level of ordinary skill in the art”.<sup>28</sup>

However, the size of the holes was carefully considered in McCarthy as follows:

Because there is no source of EMI/RFI emissions adjacent the openings 55, these openings are slightly larger than openings 56 to allow greater air flow...the size of each of the openings 55 is approximately 11.75 mm X 18.7 mm and 11.9 mm deep...The size and depth of the openings 56 are chosen to balance the functional requirement of providing a Faraday shield preventing RFI/EMI emissions and yet permitting sufficient air flow through the card cage to dissipate the heat generated by the electronics without causing acoustic noise. Col. 6, lines 25-44.

As such, the holes were not merely chosen to be as small as possible to save space, but rather to balance the functional requirements of a Faraday shield and sufficient air flow. Indeed, 0.09 inches is about 2.3 mm. In this manner, a rectangular hole of approximately 11.75 mm X 18.7 mm and 11.9 mm deep is not a hole less than about 2.3 mm (i.e., about 0.09 inches).

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<sup>27</sup> Citing In re Japikse 86 USPQ 70 (1950).

<sup>28</sup> Citing In re Rose, 105 USPQ 237 (CCPA 1955).

Accordingly, McCarthy fails to teach, advise, or suggest where “said ventilation holes are less than about 0.09 inches in diameter” as recited in Claim 18.

“The factual inquiry whether to combine references must be thorough and searching”.<sup>29</sup> “It must be based on objective evidence of record”.<sup>30</sup> “This precedent has been reinforced in myriad decisions, and cannot be dispensed with”.<sup>31</sup> Accordingly, Applicant submits that the cited art of record contains no teaching, suggestion, or motivation to combine the references as proposed by the Office.<sup>32</sup> The Office is impermissibly picking and choosing the various missing claimed elements using hindsight reasoning in an attempt to recreate the claimed invention with Applicant’s disclosure as the basis. Thus, without using impermissible hindsight reasoning, it would not have been obvious to one of ordinary skill in the art at the time of the invention to modify McCarthy and/or Mazura to include the missing claimed elements. Regardless, Mazura in view of McCarthy fails to teach, advise, or suggest the missing claimed elements. Therefore, Claims 14-18 are patentable over Mazura in view of McCarthy.

### **Claims 12 and 21**

The Office rejected Claims 12 and 21 under 35 U.S.C. § 103(a) as being unpatentable over Mazura in view of Martin and further in view of McKenzie, U.S. Patent No. 4,002,386, issued January 11, 1977 (“McKenzie”). Applicant respectfully traverses this rejection.

The McKenzie reference discloses a handle, which locks in place to prevent it from pinching fingers against the printed circuit boards since there is no face plate covering the PCB. As part of the locking mechanism, a plurality of pulling pins are disclosed that interact with slots in the handle to keep it in a locked position.

However, the combination of Mazura in view of McCarthy and in further view of McKenzie fails to teach, advise, or suggest a face plate having “a slot formed therein”, “a

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<sup>29</sup> In re Sang Su Lee, 277 F.2d 1338, 1342, 61 U.S.P.Q.2d (BNA) 1430 (Fed. Cir. 2002) (citing McGinley v. Franklin Sports, Inc., 262 F.3d 1339, 1351-52, 60 U.S.P.Q.2d (BNA) 1001, 1008 (Fed. Cir. 2001)).

<sup>30</sup> In re Sang Su Lee at 1342.

<sup>31</sup> Id. (citing Brown & Williamson Tobacco Corp. Philip Morris Inc., 229 F.3d 1120, 1124-25, 56 U.S.P.Q.2d (BNA) 1456, 1459 (Fed. Cir. 2000) (“a showing of a suggestion, teaching, or motivation to combine the prior art references is an ‘essential component of an obviousness holding’” quoting C.R. Bard, Inc. v. M3 Systems, Inc., 157 F.3d 1340, 1352, 48 U.S.P.Q.2d (BNA) 1225, 1232 (Fed. Cir. 1998); In re Dembiczak, 175 F.3d 994, 999, 50 U.S.P.Q.2d (BNA) 1614, 1617 (Fed. Cir. 1999)).

<sup>32</sup> See ACS Hosp. Systems, Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577 (Fed. Cir. 1984) (teachings of the prior art can be combined to show obviousness only if there is some suggestion or teaching to do so).

flexible handle member having substantially the same dimensions as said slot”, where the flexible handle member is “configured to move between a retracted position and a use position”, and where the flexible handle member lies within the “slot in said retracted position and said flexible handle member extends out from said slot in said use position” as recited in Claim 12. Furthermore, Mazura in view of McCarthy and in further view of McKenzie fails to teach, advise, or suggest a retainer member configured to attach the first end of the flexible handle member to the first end of the slot such that the flexible handle member is configured to move between a retracted position and a use position, where the first end of the flexible handle member does not move when the flexible handle member moves between the retracted position and the use position as recited in Claim 21.

Upon careful examination of the cited figures and the accompanying text of McKenzie, col. 2, lines 39-47, it is apparent that the handle is not slideably attached, but rather is attached to pins mounted in the printed circuit board. Slots in the handle move the handle over a pin to a keyhole 50/51 in the slot, which then locks the handle in position. As such, McKenzie teaches a handle arrangement that requires pins to be mounted directly on to the printed circuit board and handle ends, which lock the handle in position. Indeed, the McKenzie reference teaches away from the claimed invention in that the handle in McKenzie is made to lock into position. In addition, modifying the handle in McKenzie to include the missing claimed elements would render McKenzie improper for its intended purpose, namely to lock the handle in position. Consequently, even a combination of Mazura in view of McCarthy and in further view of McKenzie fails to teach, advise, or suggest the claimed invention as recited in Claims 12 and 21.

“The factual inquiry whether to combine references must be thorough and searching”.<sup>33</sup> “It must be based on objective evidence of record”.<sup>34</sup> “This precedent has been reinforced in myriad decisions, and cannot be dispensed with”.<sup>35</sup> Accordingly, Applicant submits that the cited art of record contains no teaching, suggestion, or motivation to combine the references as

<sup>33</sup> In re Sang Su Lee, 277 F.2d 1338, 1342, 61 U.S.P.Q.2d (BNA) 1430 (Fed. Cir. 2002) (citing McGinley v. Franklin Sports, Inc., 262 F.3d 1339, 1351-52, 60 U.S.P.Q.2d (BNA) 1001, 1008 (Fed. Cir. 2001)).

<sup>34</sup> In re Sang Su Lee at 1342.

<sup>35</sup> Id. (citing Brown & Williamson Tobacco Corp. Philip Morris Inc., 229 F.3d 1120, 1124-25, 56 U.S.P.Q.2d (BNA) 1456, 1459 (Fed. Cir. 2000) (“a showing of a suggestion, teaching, or motivation to combine the prior art references is an ‘essential component of an obviousness holding’” quoting C.R. Bard, Inc., v. M3 Systems, Inc., 157 F.3d 1340, 1352, 48 U.S.P.Q.2d (BNA) 1225, 1232 (Fed. Cir. 1998); In re Dembiczak, 175 F.3d 994, 999, 50 U.S.P.Q.2d (BNA) 1614, 1617 (Fed. Cir. 1999)).

proposed by the Office.<sup>36</sup> The Office is impermissibly picking and choosing the various missing claimed elements using hindsight reasoning in an attempt to recreate the claimed invention with Applicant's disclosure as the basis. Thus, without using impermissible hindsight reasoning, it would not have been obvious to one of ordinary skill in the art at the time of the invention to modify Mazura and/or Martin in view of McKenzie to include the missing claimed elements. Regardless, Mazura and/or Martin in view of McKenzie fails to teach, advise, or suggest the missing claimed elements. Therefore, Claims 12 and 21 are patentable over Mazura in view of McCarthy and in further view of McKenzie.

Accordingly, under *In re Fitsch*, the Examiner is improperly picking and choosing the various missing claimed elements in an attempt to recreate the claimed invention with Applicant's disclosure as the "template". Without using impermissible hindsight reasoning, it would not have been obvious to one of ordinary skill in the art at the time of the invention to combine the various references as proposed by the Examiner to include the missing claimed elements. Regardless, in view of the foregoing, the various combinations fail to teach, advise, or suggest the missing claimed elements.

Therefore, for all of the foregoing reasons, the Examiner has failed to carry his burden that Claims 2-7, 9-12, 14-19, 20, and 21, Groups IV through XVI, are *prima facie* obvious by a preponderance of the evidence. Accordingly, the Groups IV through XVI claims are patentable over the cited combinations of references.

### **C. Claims 4 And 5 Are Patentable Under 35 U.S.C. § 112, Second Paragraph**

Claims 4 and 5 stand rejected for the first time under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant respectfully traverses the rejection.

The Examiner alleges that lines 2 and 3 of Claim 4 are unclear, and indicates that the phrase "when said screws are tightened to apply a predetermined amount of force...said chassis" is not understood. The Examiner questions how the screws can apply the predetermined amount of force, and what causes the screws when tightened to apply the predetermined amount of force.

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<sup>36</sup> See *ACS Hosp. Systems, Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577 (Fed. Cir. 1984) (teachings of the prior art can be combined to show obviousness only if there is some suggestion or teaching to do so).

Claim 4 recites "said first and second screws are configured to clutch when said screws are tightened to apply a predetermined amount of force between said face plate of the PCB module and said chassis". Claim 5 depends from Claim 4 and recites "said predetermined amount of force applies a load of about 70 pounds per screw". Exemplary embodiments of Claims 4 and 5 are described in the Present Application, p. 10, lines 8-18, for example (emphasis added):

The face plate 313 of the PCB module 312 suitably includes screws 316 and 318 for securing to holes 350 and 352 formed along the upper and lower horizontal beams 308 and 352, respectively. In the present exemplary embodiment, the screws 316 and 318 are suitably configured to apply a load of about 70 pounds each when fully tightened to secure the PCB module 312 within the chassis 302 against vibrations. However, the screws 316 and 318 can be configured to apply any desired load depending on the particular application. When the screws 316 and 318 are fully tightened, the screws 316 and 318 are suitably configured to clutch; meaning that the screws 316 and 318 can be turned without further tightening. Additionally, when the screws 316 and 318 clutch, they are further configured to self-latch; meaning that they cannot be extracted without being turned in the opposite direction. However, when the screws 316 and 318 are turned in the opposite direction, they loosen without clutching.

Another exemplary embodiment of the screws is illustrated on p. 11, lines 1-7, describing a jack screw:

In accordance with one aspect of the present invention, the screw 316 is suitably configured as a jack screw. Accordingly, when the screw 316 is loosened, the screw 316 moves the face plate 313 and thus the PCB module 312 away from the chassis 302. Similarly, when the screw 316 is tightened, the screw 316 moves the face plate 313 and thus the PCB module 312 toward the chassis 302. In this manner, the PCB module 312 can be more easily removed from and inserted into the chassis 302. It should be recognized that the screw 318 can be configured as a jack screw either instead of or in conjunction with the screw 316 (emphasis added).

WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY (Unabridged) defines a jack screw as "a cylinder with a helical cut groove on the outer surface or a cone with a conical spiral groove used variously (as to fasten, apply pressure, transmit motion, or make adjustments) esp.



when a large mechanical advantage and irreversible motion are desired".<sup>37</sup> Accordingly, by definition and as further described above, the screws can "apply a predetermined amount of force between said face plate of the PCB module and said chassis" by clutching and/or self-latching (e.g., screws 316 and 318 can be turned without further tightening, or they cannot be extracted without being turned in the opposite direction). Thus, the above definition of a jack screw and examples of the present invention illustrates how the screws apply a predetermined amount of force and what causes the predetermined amount of force. Therefore, Claims 4 and 5, Groups VI and VII, are in accordance with 35 U.S.C. § 112, second paragraph, and thus patentable.

#### **D. Separately Patentable Claims**

In addition to the foregoing discussion, the following various groups of claims are separately patentable for the following reasons:

With respect to Group I, Claim 1 is patentable over the cited reference. The cited reference fails to disclose "each PCB module includes a faceplate and a connector assembly disposed opposite said faceplate such that each PCB module is enclosed" and "said plurality of printed circuit board modules creates a seal with said chassis" as recited in Claim 1.

With respect to Group II, Claim 23 is patentable over the cited reference. The cited reference fails to disclose "said plurality of printed circuit board modules creates a seal with said chassis" as recited in Claim 23.

With respect to Group III, Claim 24 is patentable over the various combination of references. The various combination of references fails to disclose "each PCB module is enclosed" and "said plurality of printed circuit board modules creates a seal with said chassis" as recited in Claim 24.

With respect to Group IV, Claim 2 is patentable over the various combination of references. The various combination of references fails to teach, advise, or suggest "each of said plurality of PCB modules further comprises: a first screw for attaching said first end of said face plate to said chassis; and a second screw for attaching said second end of said face plate to said chassis" as recited in Claim 2.

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<sup>37</sup> WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY (Unabridged) 2040 (Merriam-Webster, Inc. 1993).

With respect to Group V, Claim 3 is patentable over the various combination of references. The various combination of references fails to teach, advise, or suggest where "said first screw is configured as a jack screw" as recited in Claim 3.

With respect to Group VI, Claim 4 is patentable over the various combination of references. The various combination of references fails to teach, advise, or suggest where "said first and second screws are configured to clutch when said screws are tightened to apply a predetermined amount of force between said face plate of the PCB module and said chassis" as recited in Claim 4.

With respect to Group VII, Claim 5 is patentable over the various combination of references. The various combination of references fails to teach, advise, or suggest where "said predetermined amount of force applies a load of about 70 pounds per screw" as recited in Claim 5.

With respect to Group VIII, Claim 19 is patentable over the various combination of references. The various combination of references fails to teach, advise, or suggest where "said top panel and said bottom panel are configured with a plurality of guide rails for guiding said PCB modules into said slots in said chassis" as recited in Claim 19.

With respect to Group IX, Claim 20 is patentable over the various combination of references. The various combination of references fails to teach, advise, or suggest where "each slot in said chassis has one guide rail mounted on said top panel and one guide rail mounted on said bottom panel, wherein said guide rails are centrally mounted with respect to each slot" as recited in Claim 20.

With respect to Group X, Claim 6 is patentable over the various combination of references. The various combination of references fails to teach, advise, or suggest "a first circuit board having a first end connected to said face plate and an opposite second end connected to said connector assembly; and a second circuit board having a first end connected to said face plate and an opposite second end connected to said connector assembly" as recited in Claim 6.

With respect to Group XI, Claim 7 is patentable over the various combination of references. The various combination of references fails to teach, advise, or suggest "said connector assembly further comprises a plurality of connectors for connecting to wire harnesses" as recited in Claim 7.

With respect to Group XII, Claim 14 is patentable over the various combination of references. The various combination of references fails to teach, advise, or suggest "said top panel and said bottom panel are interchangeable" as recited in Claims 14.

With respect to Group XIII, Claim 15 is patentable over the various combination of references. The various combination of references fails to teach, advise, or suggest "said first side panel and said second side panel are interchangeable" as recited in Claim 15.

With respect to Group XIV, Claim 18 is patentable over the various combination of references. The various combination of references fails to teach, advise, or suggest or "said ventilation holes are less than about 0.09 inches in diameter" as recited in Claim 18.

With respect to Group XV, Claim 12 is patentable over the various combination of references. The various combination of references fails to teach, advise, or suggest or a face plate having "a slot formed therein", "a flexible handle member having substantially the same dimensions as said slot", where the flexible handle member is "configured to move between a retracted position and a use position", and where the flexible handle member lies within the "slot in said retracted position and said flexible handle member extends out from said slot in said use position" as recited in Claim 12.

With respect to Group XVI, Claim 21 is patentable over the various combination of references. The various combination of references fails to teach, advise, or suggest or a retainer member configured to attach the first end of the flexible handle member to the first end of the slot such that the flexible handle member is configured to move between a retracted position and a use position, where the first end of the flexible handle member does not move when the flexible handle member moves between the retracted position and the use position as recited in Claim 21.

**IX. CONCLUSION**

For the above reasons, Claims 1, 13, and 22-24 are patentable under 35 U.S.C. § 102(b) and are not anticipated by the cited reference. In addition, for the above reasons, Claims 2-7, 9-12, 14-19, 20, and 21 are patentable under 35 U.S.C. § 103(a) and are not obvious to one skilled in the art having knowledge of the cited combinations of references. Accordingly, Appellant respectfully submits that Claims 1-7 and 9-24 are patentable over the prior art and respectfully requests this Board to so indicate.

Dated: 4-11-03

Respectfully submitted,

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**X. APPENDIX OF CLAIMS ON APPEAL**

1. An integrated modular avionics (IMA) cabinet comprising:
  - a plurality of printed circuit board (PCB) modules, wherein each PCB module includes a faceplate and a connector assembly disposed opposite said faceplate such that each PCB module is enclosed; and
  - a chassis having a front, wherein said front of said chassis is configured with slots for receiving said plurality of PCB modules, and wherein said plurality of printed circuit board modules creates a seal with said chassis.
2. An IMA cabinet in accordance with claim 1, wherein each of said plurality of PCB modules further comprises:
  - said face plate having a first end and an opposite second end;
  - a first screw for attaching said first end of said face plate to said chassis; and
  - a second screw for attaching said second end of said face plate to said chassis.
3. An IMA cabinet in accordance with claim 2, wherein said first screw is configured as a jack screw.
4. An IMA cabinet in accordance with claim 2, wherein said first and second screws are configured to clutch when said screws are tightened to apply a predetermined amount of force between said face plate of the PCB module and said chassis.
5. An IMA cabinet in accordance with claim 4, wherein said predetermined amount of force applies a load of about 70 pounds per screw.
6. An IMA cabinet in accordance with claim 2, wherein said PCB module further comprises:
  - a first circuit board having a first end connected to said face plate and an opposite second end connected to said connector assembly; and

a second circuit board having a first end connected to said face plate and an opposite second end connected to said connector assembly, wherein said second circuit board is disposed adjacent said first circuit board.

7. An IMA cabinet in accordance with claim 6, wherein said connector assembly further comprises a plurality of connectors for connecting to wire harnesses.

Claim 8 has been cancelled.

9. An IMA cabinet in accordance with claim 7, wherein said first circuit board and said second circuit board are connected to said connectors without using ribbon cables or flexprint interconnections.

10. An IMA cabinet in accordance with claim 9, wherein said first circuit board and said second circuit board are connected to said connectors with surface mounted leads.

11. An IMA cabinet in accordance with claim 9, wherein said first circuit board and said second circuit board are connected to said connectors with 90 degree leads.

12. An IMA cabinet in accordance with claim 2, wherein said face plate has a slot formed therein and said face plate further comprises a flexible handle member having substantially the same dimensions as said slot, said flexible handle member being configured to move between a retracted position and a use position, wherein said flexible handle member lies within said slot in said retracted position and said flexible handle member extends out from said slot in said use position.

13. An IMA cabinet in accordance with claim 1 wherein said chassis further comprises:  
a top panel;  
a bottom panel opposite said top panel;  
a first side panel connecting said top panel to said bottom panel; and

a second side panel opposite said first side panel, said second panel connecting said top panel to said bottom panel.

14. An IMA cabinet in accordance with claim 13 wherein said top panel and said bottom panel are interchangeable.

15. An IMA cabinet in accordance with claim 13 wherein said first side panel and said second side panel are interchangeable.

16. An IMA cabinet in accordance with claim 13 wherein said top panel and said bottom panel are configured with a plurality of ventilation holes for cooling said PCB modules.

17. An IMA cabinet in accordance with claim 16 wherein said ventilation holes are sized to be resistant to electromagnetic interference (EMI) and to radio frequency interference (RFI).

18. An IMA cabinet in accordance with claim 17 wherein said ventilation holes are less than about 0.09 inches in diameter.

19. An IMA cabinet in accordance with claim 13 wherein said top panel and said bottom panel are configured with a plurality of guide rails for guiding said PCB modules into said slots in said chassis.

20. An IMA cabinet in accordance with claim 19 wherein each slot in said chassis has one guide rail mounted on said top panel and one guide rail mounted on said bottom panel, wherein said guide rails are centrally mounted with respect to each slot.

21. An IMA cabinet in accordance with claim 6, wherein said face plate has a slot formed therein and said face plate further comprises:

a flexible handle member having substantially the same dimensions as said slot; and

a retainer member configured to attach said first end of said flexible handle member to said first end of said slot such that said flexible handle member is allowed to move between a

retracted position and a use position, wherein said flexible handle member lies within said slot in said retracted position and said flexible handle member extends out from said slot in said use position, and said first end of said flexible handle member does not move when said flexible handle member moves between said retracted position and said use position.

22. An IMA cabinet in accordance with claim 1, wherein each faceplate of said plurality of printed circuit board modules creates a seal with said chassis.

23. An integrated modular avionics (IMA) cabinet comprising:  
a plurality of printed circuit board (PCB) modules; and  
a chassis having a front, wherein said front of said chassis is configured with slots for receiving said plurality of PCB modules, and wherein said plurality of printed circuit board modules creates a seal with said chassis, wherein said seal is resistant to at least one of electromagnetic interference (EMI) and radio frequency interference (RFI).

24. An integrated modular avionics (IMA) cabinet comprising:  
a plurality of printed circuit board (PCB) modules, wherein each PCB module is enclosed; and  
a chassis having a front, wherein said front of said chassis is configured with slots for receiving said plurality of PCB modules, and wherein said plurality of printed circuit board modules creates a seal with said chassis, wherein said seal is resistant to at least one of electromagnetic interference (EMI) and radio frequency interference (RFI).